New Type of Database of Substance Properties

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We develop a scientific basis and provide practical implementation of a new type of database on properties of substances. It contains a printed (traditional) reference book and Internet site, where all the equations, tables and graphs presented in an open, interactive form.

Internet site have following features:

- on-line calculation of properties of substances within different input parameters, providing results in numerical, graphical and tabular form, a numerical representation of the calculation results and possibility of number of digits fixation in results and the accuracy of calculations;

- download functions and procedures that return properties of the substances according to their parameters. These functions and procedures are intended for use in computer engineering applications: Excel, Mathcad, MATLAB, programming languages, CAD/CAM, etc.;

- auto-generating function for use in a variety of computer engineering applications, taking into account the user needs the range of initial parameters (pressure, temperature, etc.)

In addition, the authors developed and implemented in practice technology for referencing from computer engineering applications to function on the properties of substances stored on site that is included in the above set of "reference sites on the Internet." This technology refers to technology "cloud" computing and takes the process of supplying engineers, designers and researchers data on the properties of substances at a new level of information.

Based on the above-mentioned technology the following two information-publishing projects are completed:

- Reference book "Thermal and physical properties of working medias of the thermal engineering"
- Reference book "Properties and processes of working medias and materials of the nuclear engineering"